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ning of each regular issue of the PCT Gazette.*

(54) Title: ANTI-IDIOTYPE ANTI-CEA ANTIBODY MOLECULES AND ITS USE AS CANCER VACCINE

(57) Abstract: The present invention provides molecules, preferably designed immunoglobulins, suitable for use as an anti-idiotypic vaccine to CEA positive tumours. The molecules induce both an MHC class I and MHC class II mediated immune response to the CEA bearing tumour cells for an efficient and sustained host anti-tumour response. The present invention provides modified versions of anti-idiotypic anti-CEA antibodies, preferably mouse antibody 708, with improved vaccination properties. The modifications are related to the introduction of sequences tracts deriving from e.g. CEA, CD55 antigen and CEA cancer-specific MHC epitopes into the variable regions of said antibody molecules.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C07K A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 52976 A (BIOVATION LTD ;CARR FRANCIS J (GB)) 26 November 1998 (1998-11-26) cited in the application example 3	1-7
X	WO 97 34636 A (HANSEN HANS ;LEUNG SHUI ON (US); IMMUNOMEDICS INC (US); LOSMAN MIC) 25 September 1997 (1997-09-25) page 24, line 1 -page 26, line 10 -/--	1-7



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DURRANT L G ET AL: "HUMAN ANTI-IDIOTYPIC ANTIBODIES CAN BE GOOD IMMUNOGENS AS THEY TARGET FC RECEPTORS ON ANTIGEN-PRESENTING CELLS ALLOWING EFFICIENT STIMULATION OF BOTH HELPER AND CYTOTOXIC T-CELL RESPONSES"</p> <p>INTERNATIONAL JOURNAL OF CANCER, NEW YORK, NY, US, vol. 92, no. 3, 1 May 2000 (2000-05-01), pages 414-420, XP001041422 ISSN: 0020-7136 cited in the application the whole document</p>	1-24
A	<p>WO 97 32021 A (DURRANT LINDY GILLIAN ;ROBINS RICHARD ADRIAN (GB); SPENDLOVE IAN) () 4 September 1997 (1997-09-04) cited in the application page 7, line 11 - line 34 page 13, line 7 - line 23</p>	8,9,18, 23
P,A	<p>WO 02 058728 A (DURRANT LINDA GILLIAN ;ROBINS ADRIAN (GB); PARSONS TINA (GB); SCAN) 1 August 2002 (2002-08-01) example 5</p>	8,9,18, 23

INTERNATIONAL SEARCH REPORT

nal Application No

PCT/EP 03/03580

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 9852976	A	26-11-1998	AU 736549 B2	02-08-2001
			AU 7539398 A	11-12-1998
			EP 0983303 A1	08-03-2000
			WO 9852976 A1	26-11-1998
			GB 2339430 A	26-01-2000
			JP 2002512624 T	23-04-2002
			US 2003153043 A1	14-08-2003
WO 9734636	A	25-09-1997	AU 2342897 A	10-10-1997
			CA 2250080 A1	25-09-1997
			EP 0939653 A1	08-09-1999
			JP 2000511403 T	05-09-2000
			WO 9734636 A1	25-09-1997
WO 9732021	A	04-09-1997	AU 2225297 A	16-09-1997
			WO 9732021 A1	04-09-1997
WO 02058728	A	01-08-2002	WO 02058728 A2	01-08-2002